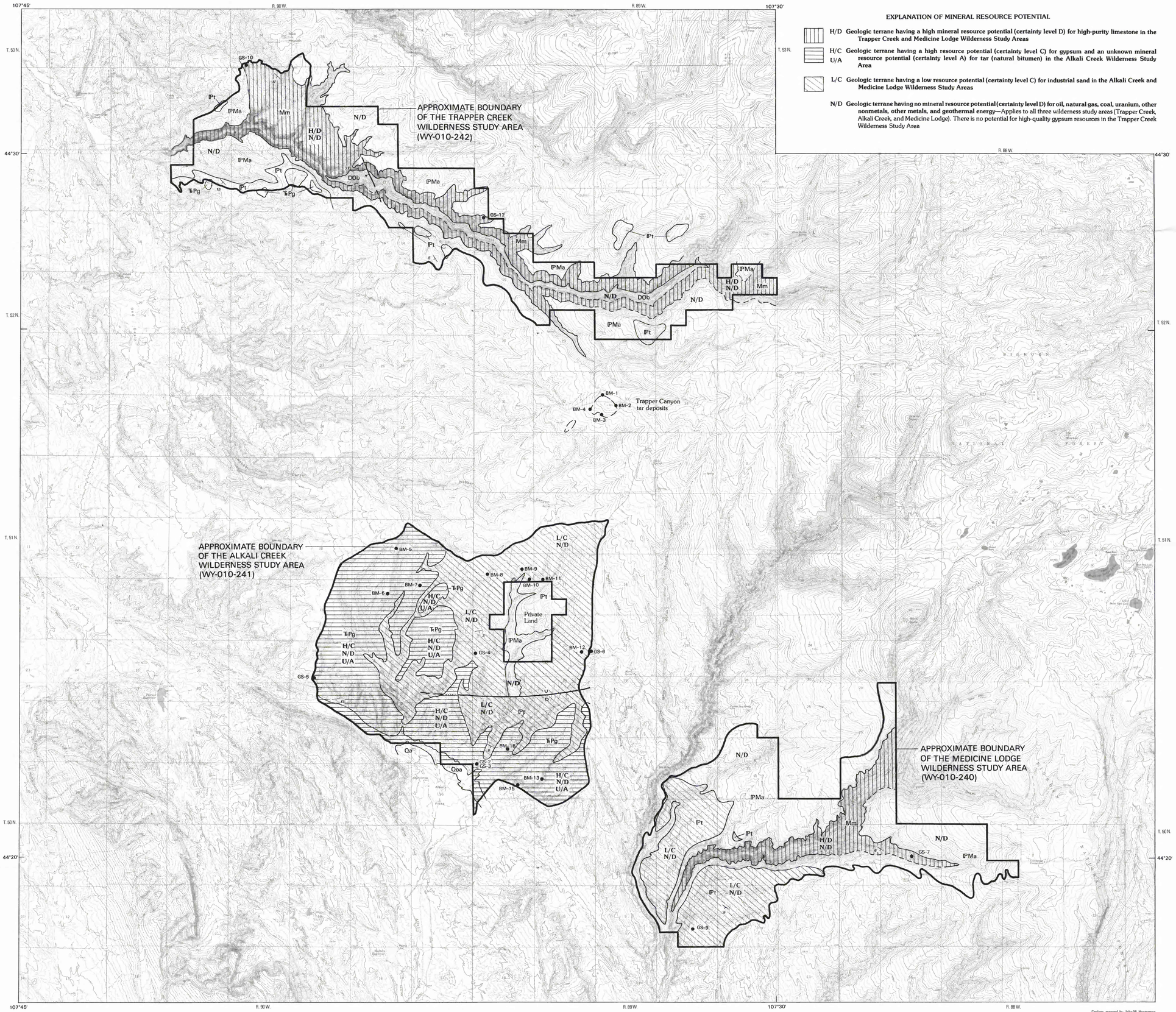
DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY

BULLETIN 1756-A
PLATE 1



EXPLANATION OF MINERAL RESOURCE POTENTIAL

H/D **Geologic terrane having a high mineral resource potential (certainty level D) for high-purity limestone in the Trapper Creek and Medicine Lodge Wilderness Study Areas**

H/C U/A **Geologic terrane having a high resource potential (certainty level C) for gypsum and an unknown mineral resource potential (certainty level A) for tar (natural bitumen) in the Alkali Creek Wilderness Study Area**

L/C **Geologic terrane having a low resource potential (certainty level C) for industrial sand in the Alkali Creek and Medicine Lodge Wilderness Study Areas**

N/D **Geologic terrane having no mineral resource potential (certainty level D) for oil, natural gas, coal, uranium, other nonmetals, other metals, and geothermal energy**—Applies to all three wilderness study areas (Trapper Creek, Alkali Creek, and Medicine Lodge). There is no potential for high-quality gypsum resources in the Trapper Creek Wilderness Study Area

CORRELATION OF MAP UNITS

Qa, Qoa	QUATERNARY
Unconformity	
TrPg	TRIASSIC AND PERMIAN
Unconformity	
IPt	PENNSYLVANIAN
IPMa	PENNSYLVANIAN AND MISSISSIPPIAN
Unconformity	
Mm	MISSISSIPPIAN
Unconformity	
DOb	DEVONIAN AND ORDOVICIAN

DESCRIPTION OF MAP UNITS

Qa **Alluvium (Quaternary)**—Unconsolidated silt and sand. Includes stream-wash deposits and alluvial fan deposits

Qoa **Older alluvium (Quaternary)**—Unconsolidated silt, sand, and gravel. Includes older fan deposits, colluvium, and talus

TrPg **Goose Egg Formation (Triassic and Permian)**—Dark-red siltstones interbedded with greenish-gray dolomite and dolomitic limestone. Contains at least two gypsum beds

IPt **Tensleep Sandstone (Pennsylvanian)**—Upper part: well-sorted quartz sand cemented with silica or carbonate. Lower part: interbedded light-gray dolomite and red and green mudstone beds in predominantly white to gray carbonate-cemented sandstone

IPMa **Amsden Formation (Pennsylvanian and Mississippian)**—Composed of shale, siltstone, mudstone, and cherty limestone and dolomite

Mm **Madison Limestone (Mississippian)**—Chiefly thick-bedded limestone, dolomitic limestone, and dolomite

DOb **Darby Formation and Bighorn Dolomite, undivided (Devonian and Ordovician)**—Greenish-gray dolomite interbedded with dolomitic shale and siltstone (Darby Formation). Light cream and light brown finely crystalline dolomite (Bighorn Dolomite—dominant lithology)

Contact—Dashed where approximately located

Fault—Dashed where approximately located; dotted where concealed. U, up; D, down

Monocline—Arrow indicates direction of steepest dip

Strike and dip of inclined beds

BM-10 ● **Sample locality and number**—GS, U.S. Geological Survey; BM, U.S. Bureau of Mines
GS-9 ●

Boundary of wilderness study area

LEVEL OF RESOURCE POTENTIAL ↑ / LEVEL OF CERTAINTY →	A	B	C	D
U/A	H/B HIGH POTENTIAL	H/C HIGH POTENTIAL	H/D HIGH POTENTIAL	
UNKNOWN POTENTIAL	M/B MODERATE POTENTIAL	M/C MODERATE POTENTIAL	M/D MODERATE POTENTIAL	
	L/B LOW POTENTIAL	L/C LOW POTENTIAL	L/D LOW POTENTIAL	
			N/D NO POTENTIAL	

LEVELS OF RESOURCE POTENTIAL

H High mineral resource potential
M Moderate mineral resource potential
L Low mineral resource potential
U Unknown mineral resource potential
N No known mineral resource potential

LEVELS OF CERTAINTY

A Available data not adequate
B Data indicate geologic environment and suggest level of resource potential
C Data indicate geologic environment, give good indication of level of resource potential, but do not establish activity of resource-forming processes
D Data clearly define geologic environment and level of resource potential and indicate activity of resource-forming processes in all or part of the area

Diagram showing relationships between levels of mineral resource potential and levels of certainty. Shading shows levels that apply to this study area

Base from U.S. Geological Survey
Black Mountain, White Sulphur Spring
Brush Butte, Fillner Reservoir, Hyatt Ranch,
and Allen Draw 7.5 minute quadrangles

APPROXIMATE MEAN DECLINATION, 1975

SCALE 1:48 000

1 ½ 0 1 2 3 MILES
1 .5 0 1 2 3 KILOMETERS

CONTOUR INTERVAL 50 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929

WYOMING

Geology mapped by John W. Hosterman and Cheryl A. Edwards

MINERAL RESOURCE POTENTIAL, GEOLOGIC, AND SAMPLE LOCALITY MAP OF THE TRAPPER CREEK, ALKALI CREEK, AND MEDICINE LODGE WILDERNESS STUDY AREAS, BIG HORN COUNTY, WYOMING